Ordering number: EN2683A

Monolithic Linear IC

LA4282

2-Channel 10 W AF Power Amplifier for Use in Home Stereo, TV Applications

Overview

The LA4282 is an IC which seals a high-output power amplifier for TVs and monitors in a compact package.

Features

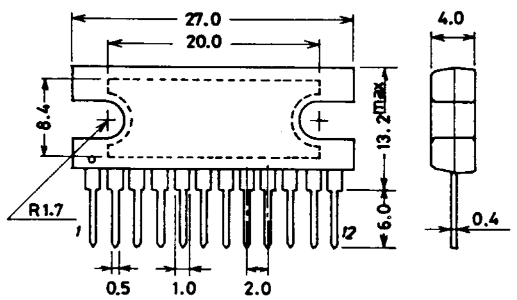
- High-power 2-channel AF power amplifier
- Low distortion
- Minimum number of external parts required (no bootstrap capacitor required)
- Low pop noise at the time of power supply ON/OFF
- Good ripple rejection (58 dB typ)
- Wide operating voltage range
- External muting available
- On-chip protector against abnormality (thermal shutdown, overvoltage)

Package Dimensions

unit : mm

3049A-SIP12H

[LA4282]



SANYO : SIP12H

Specifications

Maximum Ratings at Ta = 25 °C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max	Quiescent	45	V
Maximum output current	$I_{O\ peak}$		4	A
Allowable power dissipation	Pd max	With heat sink	25	W
Operating temperature	Topr		–20 to +75	°C
Storage temperature	Tstg		–40 to +150	°C

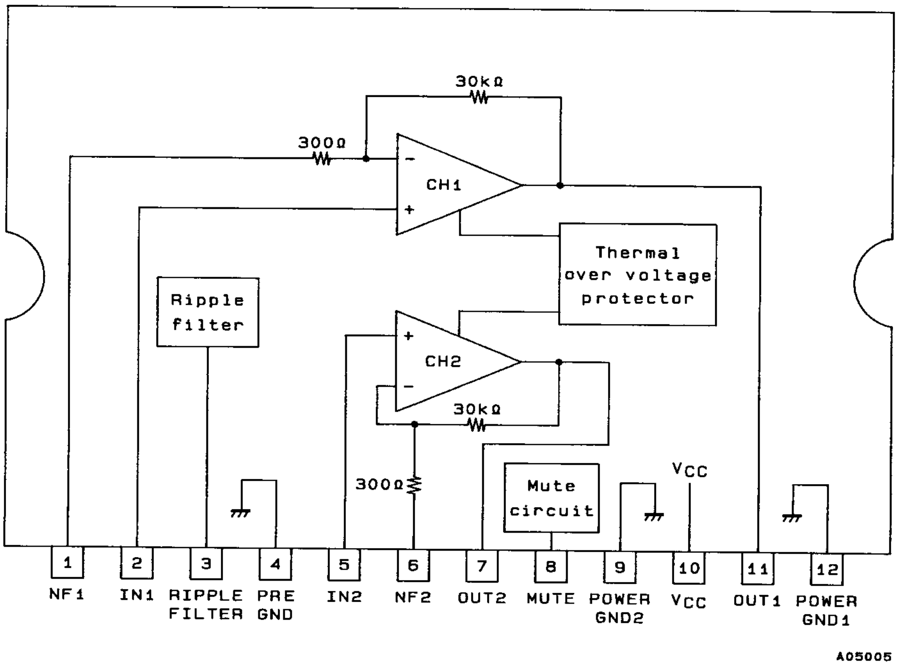
Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V_{CC}		32	V
	V_{CC} op		10 to 40	V
Recommended load resistance	R_L		8	Ω

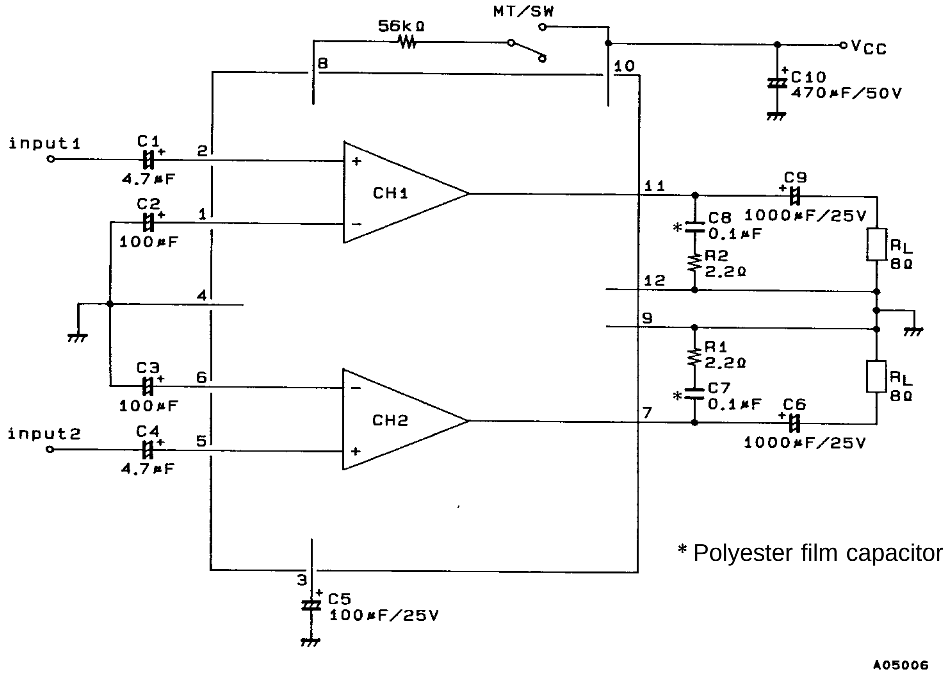
Operating Characteristics at Ta = 25°C, V_{CC}= 32 V, R_L = 8 Ω, f = 1 kHz, Rg = 600 Ω, See Test Circuit.

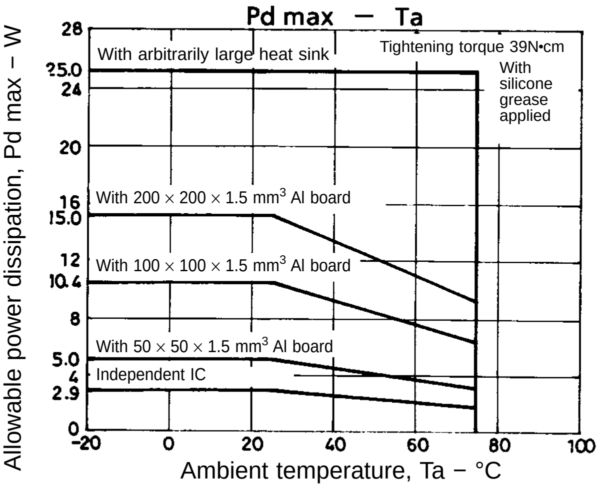
Parameter	Symbol	Conditions	min	typ	max	Unit
Quiescent current	I_{CCO}(1)	Quiescent	30	60	100	mA
	I_{CCO}(2)	Muting switch On	30	56	100	mA
Voltage gain	VG		38	40	42	dB
Voltage gain difference	ΔVG				1.5	dB
Output power	P_O (1)	THD = 1%	9.0	10.0		W
	P_O (2)	THD = 3%	10.0	11.5		W
Total harmonic distortion	THD	P_O = 2 W		0.05	0.20	%
Output noise voltage	V_{NO}	Rg = 10 kΩ, BW = 20 Hz to 20 kHz		0.25	1.0	mV
Ripple rejection	SVRR	Rg = 10 kΩ, f_R = 100 Hz, V_R = 0 dBm	45	58		dB
Crosstalk	CT	Rg = 10 kΩ	45	60		dB
Muting	$V_{O(MT)}$	Muting switch On, V_{IN} = –5 dBm			–35	dBm

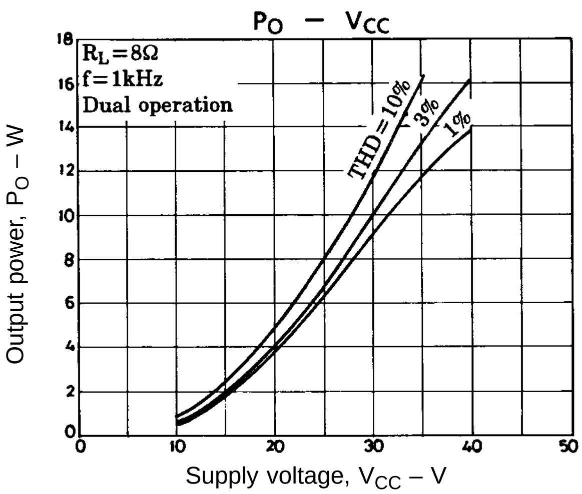
Equivalent Circuit Block Diagram and Pin Assignment

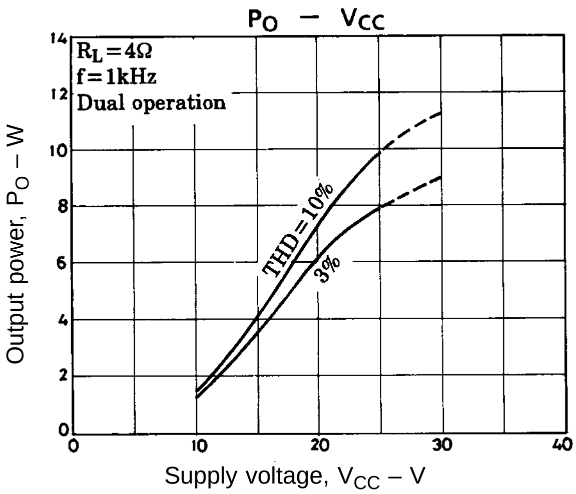


Test Circuit

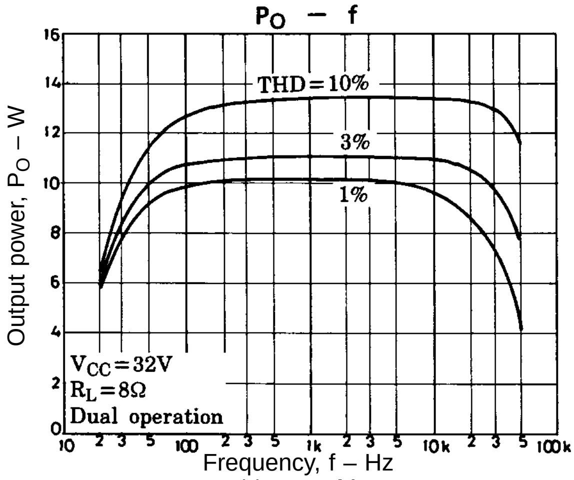




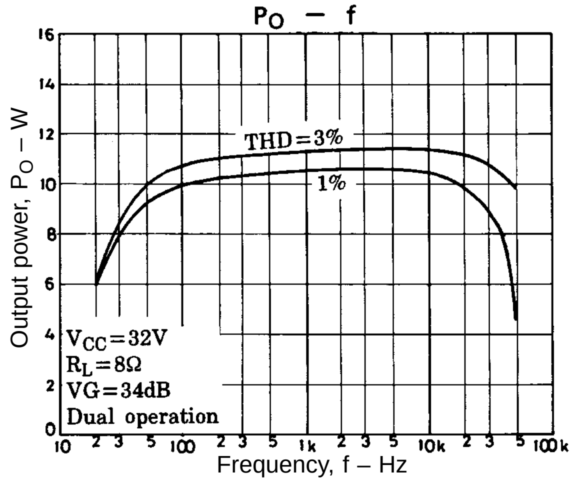




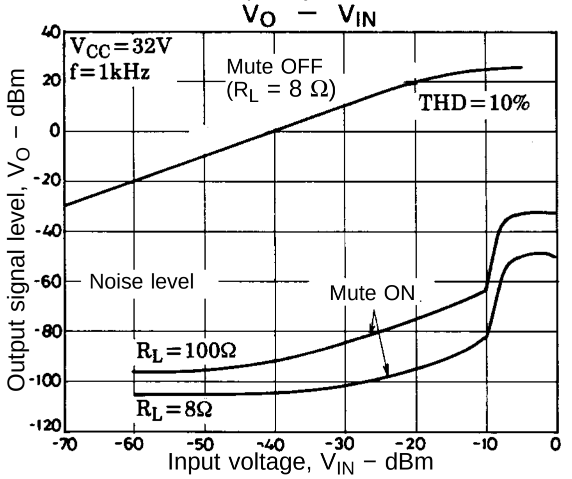
P_O – f



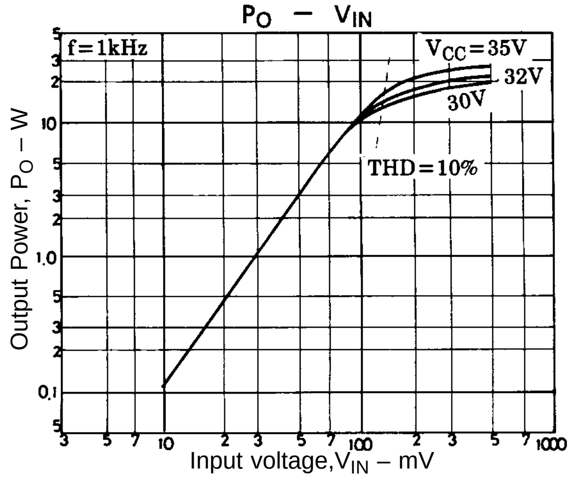
P_O – f



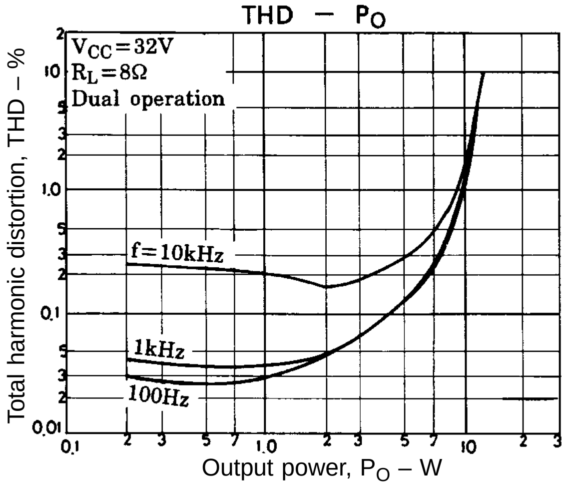
V_O – V_{IN}



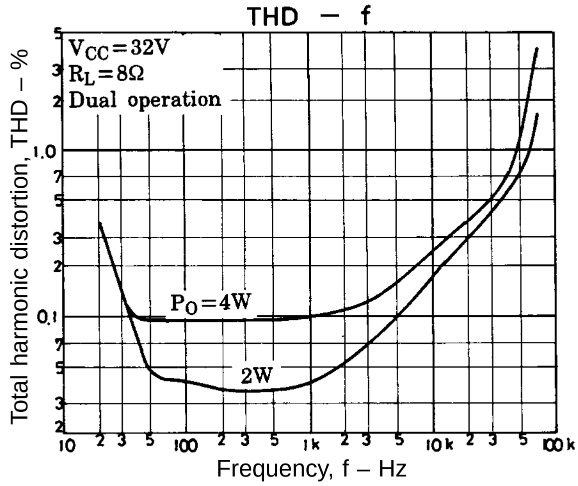
P_O – V_{IN}



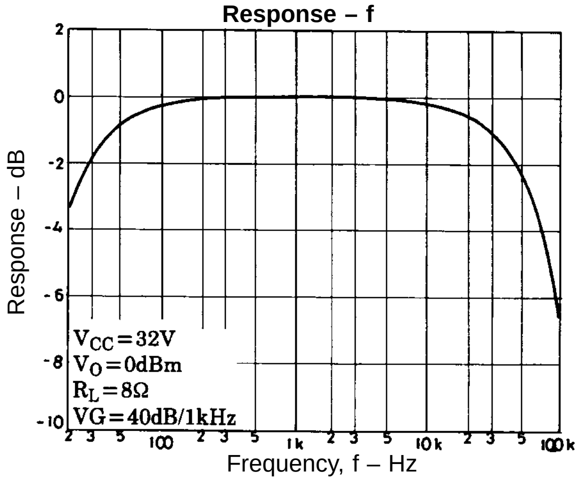
THD – P_O



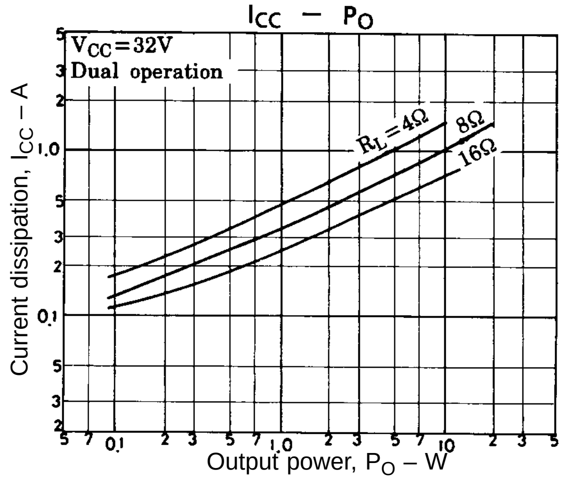
THD – f

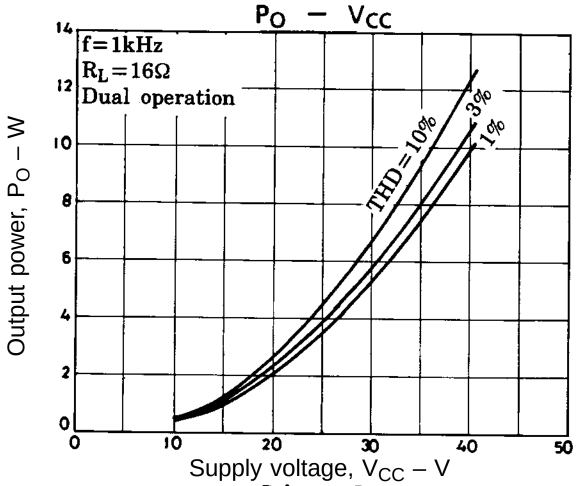


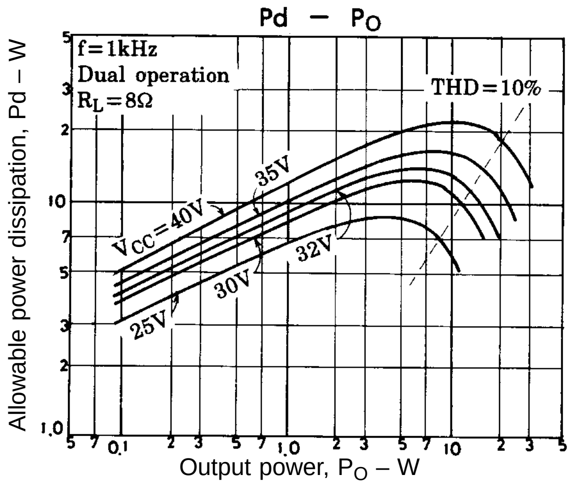
Response – f

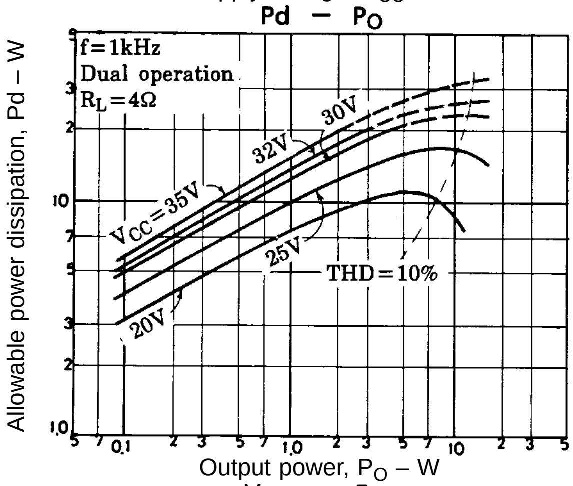


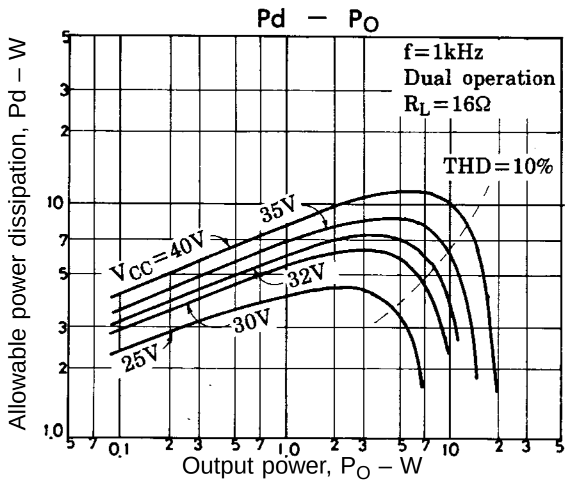
I_{CC} – P_O

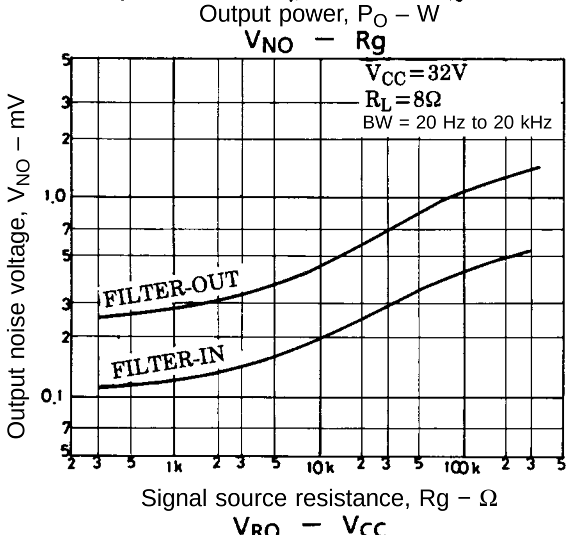


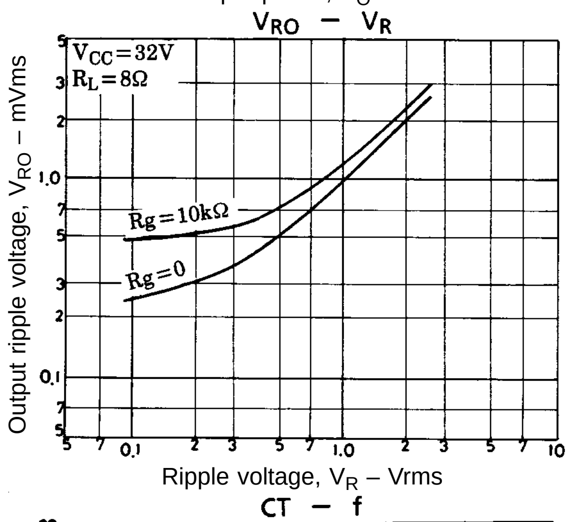

PO – VCC
f=1kHz
RL=16Ω
Dual operation
THD=10%
3%
1%
Output power, PO – W
Supply voltage, VCC – V

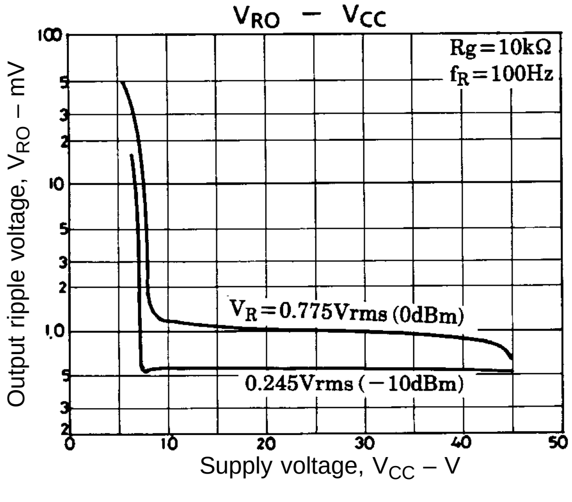

Pd – PO
f=1kHz
Dual operation
RL=8Ω
THD=10%
VCC=40V
35V
32V
30V
25V
Allowable power dissipation, Pd – W
Output power, PO – W

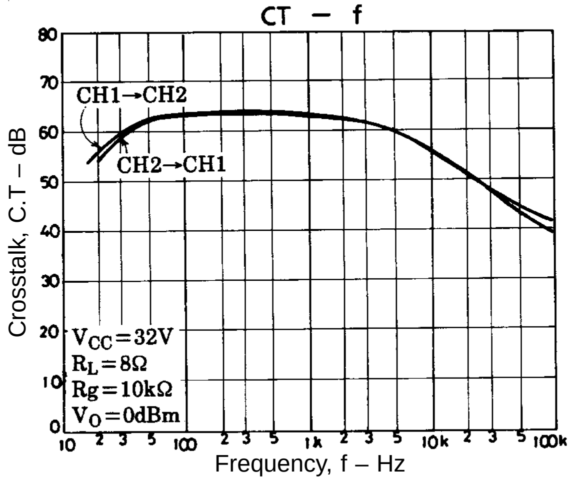

Pd – PO
f=1kHz
Dual operation
RL=4Ω
VCC=35V
32V
30V
25V
20V
THD=10%
Allowable power dissipation, Pd – W
Output power, PO – W


Pd – PO
f=1kHz
Dual operation
RL=16Ω
THD=10%
VCC=40V
35V
32V
30V
25V
Allowable power dissipation, Pd – W
Output power, PO – W


VNO – Rg
VCC=32V
RL=8Ω
BW = 20 Hz to 20 kHz
FILTER-OUT
FILTER-IN
Output noise voltage, VNO – mV
Signal source resistance, Rg – Ω


VRO – VR
VCC=32V
RL=8Ω
Rg=10kΩ
Rg=0
Output ripple voltage, VRO – mVms
Ripple voltage, VR – Vrms


VRO – VCC
Rg=10kΩ
fR=100Hz
VR=0.775Vrms (0dBm)
0.245Vrms (−10dBm)
Output ripple voltage, VRO – mV
Supply voltage, VCC – V


CT – f
CH1→CH2
CH2→CH1
VCC=32V
RL=8Ω
Rg=10kΩ
VO=0dBm
Crosstalk, C.T – dB
Frequency, f – Hz